

grasses are generated for the pastoral districts of Gregory North, Gregory South, Mitchell, Warrego and Maranoa from a database of grasses I have of Australian grasses at the Queensland Herbarium. Roberts and Silcock have 15% of this total in their book. Even for the pastoral districts of Warrego and Maranoa a figure of 265 (20% of this total in Roberts & Silcock) is generated, and of this list there are as many as 34 genera from these two districts of the south-west which are not treated by Roberts and Silcock. Some of these such as *Alloteropsis*, *Ancistrachne*, *Diplachne* and *Setaria* are common representative of native pastures and should have been included.

The identification table on p 33, used in conjunction with the diagram on p 34, is a useful practical aid to identification of a grass, assuming it is one of the species covered by the book. Strictly speaking the caption of the left hand column should possibly be 'land type' as categories included in this column cover aspects of ecology other than 'type of soil' e.g. Box Sandlewood.

There is a text for each of the 52 species in the book. The first section consists of a description featuring the habit, inflorescence (as 'seedhead'), and leaves in all descriptions. Occasionally other morphological features, such as ligules and nodes are mentioned or other attributes of the plant such as colour or odour. There is probably a need for more standardisation in the description. Following the description is a small section describing the soils types associated with the grass. In one case under this heading (*Erneapogon polyphyllus*) a comment on response to rainfall has been placed here, presumably in error. Finally the text give details on the grazing value of the grass with a statement on palatability and a measure of crude protein levels and in most cases also of phosphorous. Now and then there is also some mention of ecological characters of the grass, but again there is a need for greater standardisation of the presentation of data.

The illustrations of Gillian Scott are clear and usually adequate to be able to identify the particular species concerned. In some cases, however, there is a further need for the spikelets to be shown at a higher magnification to illustrate some detail of the spikelets. e.g. in *B. piligera* where spikelets ('seeds') are cov-

ered in 'short fine hairs' but this feature cannot be seen in the illustration.

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Brian Roberts (1993). *Ground Rules, Perspectives on Land Stewardship*. Pp. 316. University of Southern Queensland Press, Toowoomba. Price \$24. ISBN 0 949 41452 2.

This is the third book dealing with Landcare and the stewardship approach to property and natural resource management produced by Brian Roberts, Professor of Land Use at University of Southern Queensland, Toowoomba. It comes at the end of the first three years of the development of landcare in Australia and after 20 or so years that Brian has worked in land and natural resource management.

The book is a collection of papers, some of which have been published elsewhere, but others are presented in this volume for the first time. As stated in the Preface... "This collection also reflects the expansion and maturing of the author's world view over a period of two decades."

Its central theme is the development of the ethics required for sustainable land management in Australia. It is an important text in this regard because, although landholders love their farms and the way of life, there is not yet a widely adopted system of sustainable production which is linked into conserving all the natural resources occurring on farms. Brian's unifying theme is that the development of ethics that will lead to sustainable resource management is interwoven with one's attitudes and beliefs, whether religiously based or not. I agree with him. Europeans, brought up on the Christian work ethic, sought to subdue the land and its resources. They did not align land use practices with the nature of the environment in which they were operating. Consequently, in the name of 'economic production' great parts of the continent have been degraded.

Brian Roberts has divided his papers into six parts. Firstly, he discusses the concept of **sustainability** from the broad international perspective dealing with human population

numbers and human effects of utilising natural resources. He questions if Australian agricultural systems can be sustainable and then puts **Landcare** into perspective by discussing our inability to "... accept good advice and implement well-proven ideas". In essence, the conservation cropping and pastoral techniques are based on principles developed by the Romans.

Many farmers are managing the land and its resources as well as they can, under constantly changing economic circumstances. However, there is still a belief held amongst some that these resources will respond no matter how they are treated. What is needed is a change in the economic imperative from one of short term gain to long term ecological stability.

On page 45 he says "... Ethics are concerned with doing things the correct and proper way so that the group rather than the individual benefits". And "... Ethics and Land are not usually associated ...". Perhaps the landcare movement, which is based on group decision-making at the grass-roots level will encourage this association.

In several papers he draws extensively on the writings of Leopold and Nash in the discussing the development of ethics. In others, the practical issues related to better resource management are covered as well as the changes that are needed in research and advisory and extension programs to assist with the development and implementation of a stewardship approach to land management that ensures sustainable use and conservation.

The last three groups of chapters discuss the barriers and economic constraints to implementing sound land management. Brian offers hope that the Landcare movement can act as a catalyst to reduce degradation of Australia's rangelands - which cover approximately 4.5 million square kilometres (70% of the continent's area) - by matching resource capability with stock management. But can this occur under present economic systems and current beliefs?

The final section of the book looks at what has been learned from landcare; what roles should administrators in landcare play in times of climatic and economic change; and whether a Christian land ethic can contribute to sustainability.

In terms of the amount of resource degradation that is evident in Australia and the declining nutrient levels in some soils and crops, even with the advances in breeding technology that have occurred over the last 20 years, Brian Roberts could be excused for being pessimistic about the future. But he is optimistic. "The challenge is to take the best from the Christian and tribal values and meld them into a spiritually appropriate and socially acceptable set of guidelines for modern living. This means a move from man-centred materialism and God-centred spirituality."

Brian's philosophy may fall on deaf ears. Some people are not receptive to changing their land management practices. They hold onto beliefs and attitudes which are **not** suitable for sustained management of the natural resources that they have control over.

Brian Roberts concludes this land ethic text by advocating a code of conduct on land stewardship in which he integrates ecological principles with social and economic values.

#### The Land Ethic Code

- "1. To contribute to the maintenance of essential ecological processes and life support systems.
2. To preserve genetic diversity for known, and as yet unknown, uses.
3. To develop production systems which ensure sustainable use of ecosystems and species.
4. To enhance environmental quality of the human habitat.
5. To recognise and nurture the inherent values of nature irrespective of their use to humans."

The code is being practised by a few landholders, but without a change in the direction of resource management, human survival will become increasingly threatened. As was overheard at a recent biodiversity workshop in Armidale, NSW, "One more species lost is **that** much close to us."

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